

USBR PALISADES TOWN SITE PUMP (PWS 7100099) SOURCE WATER ASSESSMENT FINAL REPORT

February 25, 2003



State of Idaho Department of Environmental Quality

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Executive Summary

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative sensitivity to contaminants regulated by the Act. This assessment is based on a land use inventory of the designated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

This report, *Source Water Assessment for USBR Palisades Town Site Pump, Palisades, Idaho*, describes the public drinking water system, the boundaries of the zones of water contribution, and the associated potential contaminant sources located within these boundaries. This assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. **The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The USBR Palisades Town Site Pump (PWS #7100099) drinking water system consists of one well. The well was constructed in the mid 1950s and is the main water supply serving the system's approximately 17 people through 14 connections.

Final susceptibility scores are derived from equally weighting system construction scores, hydrologic sensitivity scores, and potential contaminant/land use scores. Therefore, a low rating in one or two categories coupled with a higher rating in another category(ies) results in a final rating of low, moderate, or high susceptibility. With the potential contaminants associated with most urban and heavily agricultural areas, the best score a well can get is moderate. Potential contaminants are divided into four categories, inorganic contaminants (IOCs, i.e. nitrates, arsenic), volatile organic contaminants (VOCs, i.e. petroleum products), synthetic organic contaminants (SOCs, i.e. pesticides), and microbial contaminants (i.e. bacteria). As different wells can be subject to various contamination settings, separate scores are given for each type of contaminant.

In terms of total susceptibility, the USBR Palisades Town Site Pump well rated moderate for IOCs, VOCs, SOCs, and microbials. System construction rated high and hydrologic sensitivity rated moderate for the well. Land use scores were moderate for IOCs and SOCs, and low for VOCs and microbials. The largest influences upon overall scores was the automatically high default scores due to missing information. If a well log and sanitary survey had been available during this analysis, overall scores might have been lower.

There are no major issues affecting USBR Palisades Town Site Pump's water. No SOCs or VOCs have ever been detected in the tested water. Total coliform bacteria have been detected four times in the distribution system since 1994, however repeat samples tested negative on all four occasions. The IOCs fluoride, nitrate, and sodium have been detected in the well, however, each of the IOCs have been detected in concentrations significantly below their maximum contaminant level (MCL). Nitrate levels have only been detected in concentrations of 1.2 parts per million (ppm) despite the delineation existing within a county of high nitrogen fertilizer use, high herbicide use, and high agricultural chemical use.

This assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what ranking a source receives, protection is always important. Whether the source is currently located in a “pristine” area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources. If the system should need to expand in the future, new well sites should be located in areas with as few potential sources of contamination as possible, and the site should be reserved and protected for this specific use.

For the USBR Palisades Town Site Pump, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey (an inspection conducted every five years with the purpose of determining the physical condition of a water system’s components and its capacity). Actions should be taken to keep a 50-foot radius circle around the wellhead clear of potential contaminants. Any contaminant spills within the delineation or into the Snake River should be carefully monitored and dealt with. As much of the designated assessment area is outside the direct jurisdiction of USBR Palisades Town Site Pump, collaboration and partnerships with state and local agencies should be established and are critical to success.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A strong public education program should be a primary focus of any drinking water protection plan, as the delineation contains some urban and residential land uses. Public education topics could include proper lawn and garden care practices, household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA. Drinking water protection activities for agriculture should be coordinated with the Idaho State Department of Agriculture, the Soil Conservation Commission, the local Soil and Water Conservation District, and the Natural Resources Conservation Service.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the DEQ or the Idaho Rural Water Association.

SOURCE WATER ASSESSMENT FOR USBR PALISADES TOWN SITE PUMP, PALISADES, IDAHO

Section 1. Introduction - Basis for Assessment

The following sections contain information necessary to understand how and why this assessment was conducted. **It is important to review this information to understand what the ranking of this assessment means.** Maps showing the delineated source water assessment area and the inventory of significant potential sources of contamination identified within that area are included. The list of significant potential contaminant source categories and their rankings used to develop the assessment also is included.

Background

Under the Safe Drinking Water Act Amendments of 1996, all states are required by the U.S. Environmental Protection Agency (EPA) to assess every source of public drinking water for its relative susceptibility to contaminants regulated by the Safe Drinking Water Act. This assessment is based on a land use inventory of the delineated assessment area and sensitivity factors associated with the wells and aquifer characteristics.

Level of Accuracy and Purpose of the Assessment

Since there are over 2,900 public water sources in Idaho, there is limited time and resources to accomplish the assessments. All assessments must be completed by May of 2003. An in-depth, site-specific investigation of each significant potential source of contamination is not possible. **Therefore, this assessment should be used as a planning tool, taken into account with local knowledge and concerns, to develop and implement appropriate protection measures for this source. The results should not be used as an absolute measure of risk and they should not be used to undermine public confidence in the water system.**

The ultimate goal of the assessment is to provide data to local communities to develop a protection strategy for their drinking water supply system. The Idaho Department of Environmental Quality recognizes that pollution prevention activities generally require less time and money to implement than treatment of a public water supply system once it has been contaminated. DEQ encourages communities to balance resource protection with economic growth and development. The decision as to the amount and types of information necessary to develop a drinking water protection program should be determined by the local community based on its own needs and limitations. Wellhead or drinking water protection is one facet of a comprehensive growth plan, and it can complement ongoing local planning efforts.

Section 2. Conducting the Assessment

General Description of the Source Water Quality

The USBR Palisades Town Site Pump (PWS #7100099) drinking water system consists of one well. The well was constructed in the mid 1950s and is the main water supply serving the system's approximately 17 people through 14 connections.

There are no major issues affecting USBR Palisades Town Site Pump's water. No SOCs or VOCs have ever been detected in the tested water. Total coliform bacteria have been detected four times in the distribution system since 1994, however repeat samples tested negative on all four occasions. The IOCs fluoride, nitrate, and sodium have been detected in the well, however, each of the IOCs have been detected in concentrations significantly below their MCL. Nitrate levels have only been detected in concentrations of 1.2 ppm despite the delineation existing within a county of high nitrogen fertilizer use, high herbicide use, and high agricultural chemical use.

Defining the Zones of Contribution – Delineation

The delineation process establishes the physical area around a well that will become the focal point of the assessment. The process includes mapping the boundaries of the zone of contribution into time-of-travel (TOT) zones (zones indicating the number of years necessary for a particle of water to reach a well) for water in the aquifer. Washington Group International (WGI) performed the delineation using a computer model approved by the EPA in determining the 3-year (Zone 1B), 6-year (Zone 2), and 10-year (Zone 3) TOT for water associated with the Snake River Plain aquifer in the vicinity of the USBR Palisades Town Site Pump. The computer model used site specific data, assimilated by WGI from a variety of sources including local area well logs, and hydrogeologic reports (detailed below).

Hydrogeologic Conceptual Model

The South Fork of the Snake River hydrologic province occupies approximately 198 square miles, with 99 percent of the total area located in Bonneville County and 1 percent located in Jefferson County. There is little available hydrogeologic information specific to the province. However, certain aspects of the basin hydrogeology can be inferred from topographic maps, information concerning the surface water hydrology, and the geologic setting.

The USBR Town Site Pump PWS is located in Swan Valley. Swan Valley is a northwest trending graben that extends from Antelope Flats to Palisades Reservoir and separates the Caribou and Snake River ranges of the Idaho-Wyoming Thrust Belt. The valley averages 6 miles in width and is drained by the South Fork of the Snake River (Roberts, 1981). The normal faults bounding the graben trend approximately N45W, parallel to the trend of pre-existing Larimide thrust faults and folds (Roberts, 1981, p. 8). The results of a gravity survey suggest over 2,000 meters of displacement near the town of Swan Valley (Roberts, 1981, p. 8). This displacement has maintained the valley as a structural low and a site of deposition through most of the Cenozoic.

The map displays the Snake River and its surrounding terrain. The river is shown in blue, flowing from the northwest towards the southeast. The area is characterized by green hills and valleys, with brown contour lines indicating elevation. Key features include:

- Snake River**: The main river flowing through the center of the map.
- Canary Canyon**: A prominent canyon to the north of the river.
- Well #2**: A specific location marked on the riverbank.
- Gaging Sta**: A gauging station located near Well #2.
- Radio Tower**: A structure located near the gauging station.
- Congress Knob**: A peak located to the west of the river.
- Canary Canyon**: A canyon located to the east of the river.
- Snake River**: The river is labeled in several places along its course.

The map includes a scale bar at the bottom ranging from 0 to 6 miles. An inset map at the top shows the location of the study area within the state of Idaho, with a scale bar from 0 to 150 miles and a north arrow.

Deposits within the Swan Valley graben are of either volcanic or sedimentary origin. The volcanic deposits are both rhyolite and basalt (Roberts, 1981, p. 16). Sedimentary deposits vary from coarse conglomerates to lacustrine silts and clays. Paleozoic and Mesozoic rocks that form mountains adjacent to the graben are the primary source of clastic materials. Volcanic units within the graben valley play a smaller role as clastic sources (Roberts, 1981, p. 17).

The South Fork of the Snake River enters Idaho at Alpine and flows northwest through the Swan Valley graben, eventually exiting onto the Snake River Plain approximately three miles past the northwest boundary of the hydrologic province. The average annual discharge for the period 1935 to 2000 was 6,574 ft³/s at a USGS gauging station 1.4 miles below Palisades Dam (Station No. 13032500; USGS, 2001). A comparison of a 1:24000 topographic map with static water levels in test point wells (01N 44E 20AAB1 and 01N 44E 26CCD1) indicates that the water table at the time of measurement was within 5 feet of the river stage near the Swan Valley Elementary School well and approximately 15 feet higher than the river stage in the vicinity of the USBR Palisades Town Site well.

At the west end of the valley, a basalt flow ranging from 50 to 70 feet below ground surface (ft-bgs) separates the water table aquifer from a deeper aquifer. Based upon well logs, the basalt does not extend in the subsurface farther east than the Swan Valley LDS church (Rocky Mountain Environmental, 2001, p. 6). Recently drilled wells penetrate the basalt and extract ground water from sediments below the basalt, as opposed to older wells that obtain water from the shallow aquifer above the basalt (Rocky Mountain Environmental, 2001, p. 7). The water table occurs at very shallow depths in the upper aquifer near Swan Valley (Rocky Mountain Environmental, 2001, p. 6).

Leakage from irrigation ditches and unlined canals is a significant source of recharge to the shallow aquifer near the town of Swan Valley. Shallow ground water discharges to the surface as springs and creeks at the west end of valley (Rocky Mountain Environmental, 2001, pp. 6, 7). The average topographic gradient between Palisades Dam and the town of Swan Valley is 0.002 (124 feet over 11 miles). According to the Western Regional Climate Center, the average annual precipitation for the Swan Valley area is 17.79 inches.

The analytic element model WhAEM2000 (Kraemer et al., 2000) was used to delineate 3-, 6-, and 10-year capture zones for PWS wells located within the South Fork of the Snake River hydrologic province.

The final hybrid capture zone for the USBR Palisades Town Site well is southeast trending and terminates at Palisades Reservoir within the 6-year time of travel. The final hybrid capture zone was clipped at the 5640-foot topographic contour in order that the rotated capture zone not extend into bedrock comprising the wall of the canyon. The selected contour corresponds to the approximate elevation at which the Palisades Reservoir dam intercepts the valley wall on the north side of the river. The capture zone has lengths of 1.05 and 1.66 miles for the 3-, and 6- year times of travel, respectively. The average areas for the 3- and 6-year travel times are 0.25 and 0.41 square miles, respectively. The actual data used in determining the source water assessment delineation area is available from DEQ upon request.

Identifying Potential Sources of Contamination

A potential source of contamination is defined as any facility or activity that stores, uses, or produces, as a product or by-product, the contaminants regulated under the Safe Drinking Water Act and has a sufficient likelihood of releasing such contaminants at levels that could pose a concern relative to drinking water sources. The goal of the inventory process is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of groundwater contamination. The locations of potential sources of contamination within the delineation areas were obtained by field surveys conducted by DEQ and from available databases.

Land use within the area surrounding the USBR Palisades Town Site Pump wells is predominantly dryland, however there is a significant amount of urban usage in the 3-6 TOT.

It is important to understand that a release may never occur from a potential source of contamination provided they are using best management practices. Many potential sources of contamination are regulated at the federal level, state level, or both to reduce the risk of release. Therefore, when a business, facility, or property is identified as a potential contaminant source, this should not be interpreted to mean that this business, facility, or property is in violation of any local, state, or federal environmental law or regulation. What it does mean is that the potential for contamination exists due to the nature of the business, industry, or operation. There are a number of methods that water systems can use to work cooperatively with potential sources of contamination, including educational visits and inspections of stored materials. Many owners of such facilities may not even be aware that they are located near a public water supply well.

Contaminant Source Inventory Process

A two-phased contaminant inventory of the study area was conducted in May and June 2002. The first phase involved identifying and documenting potential contaminant sources within the USBR Palisades Town Site Pump source water assessment area (Figure 2) through the use of computer databases and Geographic Information System (GIS) maps developed by DEQ. The second, or enhanced, phase of the contaminant inventory involved contacting the operator to identify and add any additional potential sources in the delineated areas.

The delineated source water area for the well (Figure 2, Table 1) has its potential contaminants outlined below. The only source includes Highway 26 and the Snake River.

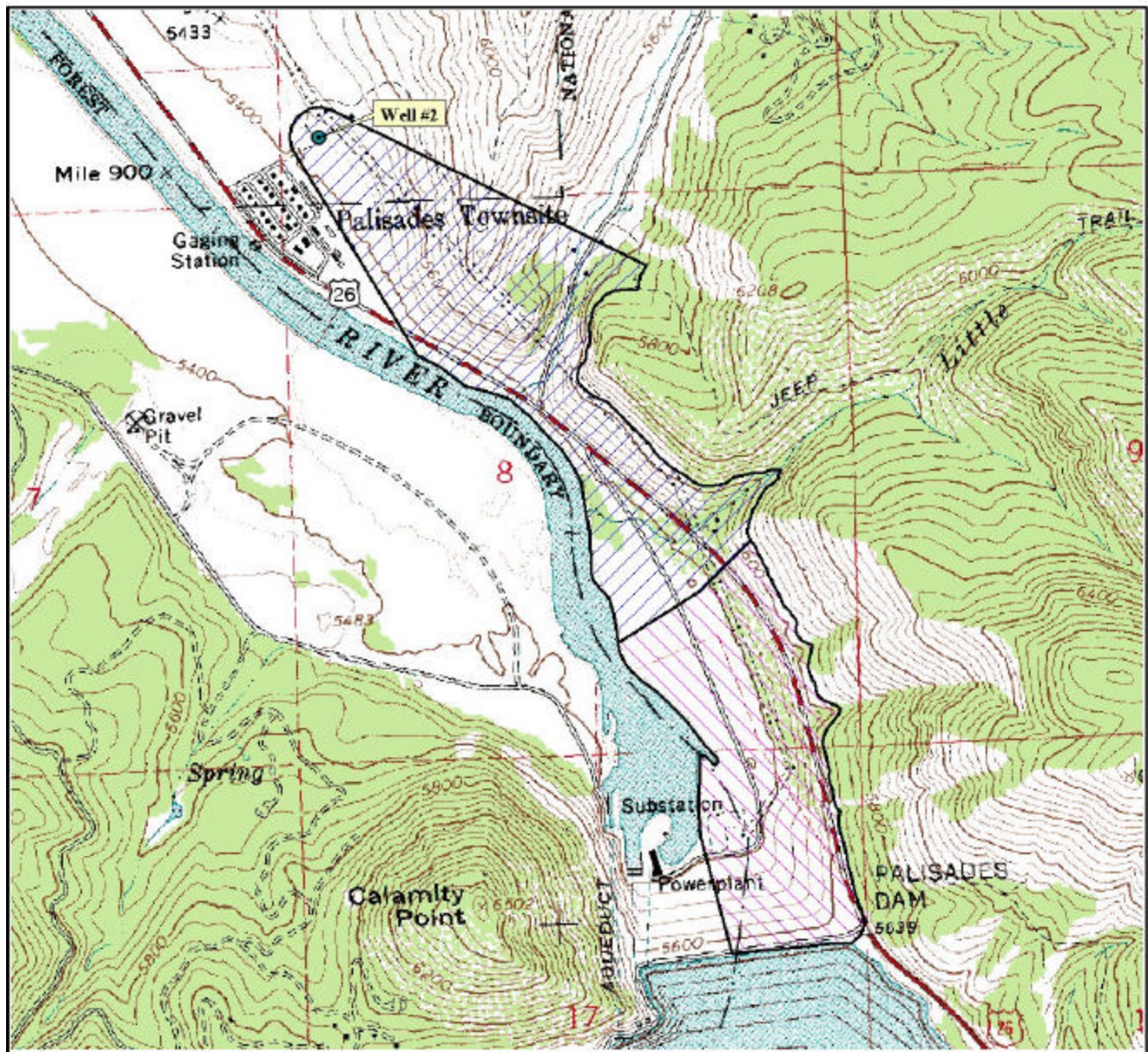
Table 1. USBR Palisades Town Site Pump, Well #2, Potential Contaminant Inventory

SITE	Source Description ¹	TOT ² ZONE	Source of Information	Potential Contaminants ³
	Snake River	0-6 YR	GIS Map	IOC, VOC, SOC, Microbials
	Highway 26	0-6 YR	GIS Map	IOC, VOC, SOC, Microbials

² TOT = time-of-travel (in years) for a potential contaminant to reach the wellhead

³ IOC = inorganic chemical, SOC = synthetic organic chemical, VOC = volatile organic chemical

FIGURE 2 - USBR Palisades Town Site Pump Delineation Map and Potential Contaminant Source Locations



0 0.2 0.4 0.6 0.8 Miles



**Technical Services
Data/GIS**
W. Kelley 8/30/02

**PWS# 7100099
Well #2**

Section 3. Susceptibility Analyses

Each well's susceptibility to contamination was ranked as high, moderate, or low risk according to the following considerations: hydrologic characteristics, physical integrity of the well, land use characteristics, and potentially significant contaminant sources. The susceptibility rankings are specific to a particular potential contaminant or category of contaminants. Therefore, a high susceptibility rating relative to one potential contaminant does not mean that the water system is at the same risk for all other potential contaminants. The relative ranking that is derived for each well is a qualitative, screening-level step that, in many cases, uses generalized assumptions and best professional judgement. Attachment A contains the susceptibility analysis worksheets. The following summaries describe the rationale for the susceptibility ranking.

Hydrologic Sensitivity

The hydrologic sensitivity of a well is dependent upon four factors: the surface soil composition, the material in the vadose zone (between the land surface and the water table), the depth to first ground water, and the presence of a 50-foot thick fine-grained zone (aquicard) above the producing zone of the well. Slowly draining soils such as silt and clay typically are more protective of ground water than coarse-grained soils such as sand and gravel. Similarly, fine-grained sediments in the subsurface and a water depth of more than 300 feet protect the ground water from contamination.

The USBR Palisades Town Site Pump well rated moderate for hydrologic sensitivity. The Natural Resource Conservation Service characterized areas soils as poorly to moderately drained, positively affecting the score. However, because no well log was available during this analysis, the composition of the vadose zone, the water table depth, and presence of an aquicard are unknown. If a well log had been available during this analysis, hydrologic sensitivity scores might have been lower

Well Construction

Well construction directly affects the ability of the well to protect the aquifer from contaminants. System construction scores are reduced when information shows that potential contaminants will have a more difficult time reaching the intake of the well. Lower scores imply a system is less vulnerable to contamination. For example, if the well casing and annular seal both extend into a low permeability unit, then the possibility of contamination is reduced and the system construction score goes down. If the highest production interval is more than 100 feet below the water table, then the system is considered to have better buffering capacity. If the wellhead and surface seal are maintained to standards, as outlined in sanitary surveys, then contamination down the well bore is less likely. If the well is protected from surface flooding and is outside the 100-year floodplain, then contamination from surface events is reduced.

USBR Palisades Town Site Pump's well rated high for system construction. Because the well log and sanitary survey were not available during this analysis, it is unknown if the casing and annular seal extend into low permeability units, or if the highest production comes from more than 100 feet below static water levels. In addition, the condition of the wellhead and surface seal are unknown.

Current PWS well construction standards are more stringent than when the well was constructed. The Idaho Department of Water Resources *Well Construction Standards Rules* (1993) require all PWSs to follow DEQ standards as well. IDAPA 58.01.08.550 requires that PWSs follow the *Recommended Standards for Water Works* (1997) during construction. Some of the regulations deal with screening requirements, aquifer pump tests, use of a downturned casing vent, and thickness of casing. Table 1 of the *Recommended Standards for Water Works* (1997) lists the required steel casing thickness for various diameter wells. Because it is unknown if the well's construction meets all current standards, the well was assessed an additional system construction point.

Potential Contaminant Source and Land Use

The well rated moderate for IOCs and SOC, and low for VOCs and microbials. The low percentage of irrigated agricultural land within the delineation contributed to the low ratings. Also factoring into the scoring was Highway 26 and the Snake River.

Final Susceptibility Ranking

A detection above a drinking water standard MCL, any detection of a VOC or SOC, or a detection of total coliform bacteria or fecal coliform bacteria at the wellhead will automatically give a high susceptibility rating to a well despite the land use of the area because a pathway for contamination already exists. Additionally, potential contaminant sources within 50 feet of a wellhead will automatically lead to a high susceptibility rating. Hydrologic sensitivity and system construction scores are heavily weighted in the final scores. Having multiple potential contaminant sources in the 0 to 3-year time of travel zone (Zone 1B) contribute greatly to the overall ranking.

Table 2. Summary of USBR Palisades Town Site Pump Susceptibility Evaluation

Well	Susceptibility Scores ¹									
	Hydrologic Sensitivity	Contaminant Inventory				System Construction	Final Susceptibility Ranking			
		IOC	VOC	SOC	Microbials		IOC	VOC	SOC	Microbials
Well #2	M	M	L	M	L	H	M	M	M	M

¹H = High Susceptibility, M = Moderate Susceptibility, L = Low Susceptibility,

IOC = inorganic chemical, VOC = volatile organic chemical, SOC = synthetic organic chemical

Susceptibility Summary

In terms of total susceptibility, the USBR Palisades Town Site Pump well rated moderate for IOCs, VOCs, SOC, and microbials. System construction rated high and hydrologic sensitivity rated moderate for the well. Land use scores were moderate for IOCs and SOC, and low for VOCs and microbials. The largest influences upon overall scores was the automatically high default scores due to missing information. If a well log and sanitary survey had been available during this analysis, overall scores might have been lower.

There are no major issues affecting USBR Palisades Town Site Pump's water. No SOCs or VOCs have ever been detected in the tested water. Total coliform bacteria have been detected four times in the distribution system since 1994, however repeat samples tested negative on all four occasions. The IOCs fluoride, nitrate, and sodium have been detected in the well, however, each of the IOCs have been detected in concentrations significantly below MCLs. Nitrate levels have only been detected in concentrations of 1.2 ppm despite the delineation existing within a county of high nitrogen fertilizer use, high herbicide use, and high agricultural chemical use.

Section 4. Options for Drinking Water Protection

The susceptibility assessment should be used as a basis for determining appropriate new protection measures or re-evaluating existing protection efforts. No matter what the susceptibility ranking a source receives, protection is always important. Whether the source is currently located in a "pristine" area or an area with numerous industrial and/or agricultural land uses that require surveillance, the way to ensure good water quality in the future is to act now to protect valuable water supply resources.

An effective drinking water protection program is tailored to the particular local drinking water protection area. A community with a fully developed drinking water protection program will incorporate many strategies. For USBR Palisades Town Site Pump, drinking water protection activities should first focus on correcting any deficiencies outlined in the sanitary survey. Actions should be taken to keep a 50-foot radius circle clear around the wellheads. Any spills within the delineation should be carefully monitored and dealt with. As much of the designated protection area is outside the direct jurisdiction USBR Palisades Town Site Pump, making collaboration and partnerships with state and local agencies and industry groups are critical to the success of drinking water protection. The well should maintain sanitary standards regarding wellhead protection.

Due to the time involved with the movement of ground water, drinking water protection activities should be aimed at long-term management strategies even though these strategies may not yield results in the near term. A public education program should be a primary focus of any drinking water protection plan as the delineation is near residential land uses areas. Public education topics could include proper household hazardous waste disposal methods, proper care and maintenance of septic systems, and the importance of water conservation to name but a few. There are multiple resources available to help communities implement protection programs, including the Drinking Water Academy of the EPA.

A community must incorporate a variety of strategies in order to develop a comprehensive drinking water protection plan, be they regulatory in nature (i.e. zoning, permitting) or non-regulatory in nature (i.e. good housekeeping, public education, specific best management practices). For assistance in developing protection strategies please contact the Idaho Falls Regional Office of the DEQ or the Idaho Rural Water Association.

Assistance

Public water suppliers and others may call the following DEQ offices with questions about this assessment and to request assistance with developing and implementing a local protection plan. In addition, draft protection plans may be submitted to the DEQ office for preliminary review and comments.

Idaho Falls Regional DEQ Office (208) 528-2650

State DEQ Office (208) 373-0502

Website: <http://www.deq.state.id.us>

Water suppliers serving fewer than 10,000 persons may contact Melinda Harper (mlharper@idahoruralwater.com), Idaho Rural Water Association, at 1-208-343-7001 for assistance with drinking water protection (formerly wellhead protection) strategies.

POTENTIAL CONTAMINANT INVENTORY

LIST OF ACRONYMS AND DEFINITIONS

AST (Aboveground Storage Tanks) – Sites with aboveground storage tanks.

Business Mailing List – This list contains potential contaminant sites identified through a yellow pages database search of standard industry codes (SIC).

CERCLIS – This includes sites considered for listing under the **Comprehensive Environmental Response Compensation and Liability Act (CERCLA)**. CERCLA, more commonly known as ASuperfund, is designed to clean up hazardous waste sites that are on the national priority list (NPL).

Cyanide Site – DEQ permitted and known historical sites/facilities using cyanide.

Dairy – Sites included in the primary contaminant source inventory represent those facilities regulated by Idaho State Department of Agriculture (ISDA) and may range from a few head to several thousand head of milking cows.

Deep Injection Well – Injection wells regulated under the Idaho Department of Water Resources generally for the disposal of stormwater runoff or agricultural field drainage.

Enhanced Inventory – Enhanced inventory locations are potential contaminant source sites added by the water system. These can include new sites not captured during the primary contaminant inventory, or corrected locations for sites not properly located during the primary contaminant inventory. Enhanced inventory sites can also include miscellaneous sites added by the Idaho Department of Environmental Quality (DEQ) during the primary contaminant inventory.

Floodplain – This is a coverage of the 100-year floodplains.

Group 1 Sites – These are sites that show elevated levels of contaminants and are not within the priority one areas.

Inorganic Priority Area – Priority one areas where greater than 25% of the wells/springs show constituents higher than primary standards or other health standards.

Landfill – Areas of open and closed municipal and non-municipal landfills.

LUST (Leaking Underground Storage Tank) – Potential contaminant source sites associated with leaking underground storage tanks as regulated under RCRA.

Mines and Quarries – Mines and quarries permitted through the Idaho Department of Lands.)

Nitrate Priority Area – Area where greater than 25% of wells/springs show nitrate values above 5mg/l.

NPDES (National Pollutant Discharge Elimination System) – Sites with NPDES permits. The Clean Water Act requires that any discharge of a pollutant to waters of the United States from a point source must be authorized by an NPDES permit.

Organic Priority Areas – These are any areas where greater than 25 % of wells/springs show levels greater than 1% of the primary standard or other health standards.

Recharge Point – This includes active, proposed, and possible recharge sites on the Snake River Plain.

RICRIS – Site regulated under **Resource Conservation Recovery Act (RCRA)**. RCRA is commonly associated with the cradle to grave management approach for generation, storage, and disposal of hazardous wastes.

SARA Tier II (Superfund Amendments and Reauthorization Act Tier II Facilities) – These sites store certain types and amounts of hazardous materials and must be identified under the Community Right to Know Act.

Toxic Release Inventory (TRI) – The toxic release inventory list was developed as part of the Emergency Planning and Community Right to Know (Community Right to Know) Act passed in 1986. The Community Right to Know Act requires the reporting of any release of a chemical found on the TRI list.

UST (Underground Storage Tank) – Potential contaminant source sites associated with underground storage tanks regulated as regulated under RCRA.

Wastewater Land Applications Sites – These are areas where the land application of municipal or industrial wastewater is permitted by DEQ.

Wellheads – These are drinking water well locations regulated under the Safe Drinking Water Act. They are not treated as potential contaminant sources.

NOTE: Many of the potential contaminant sources were located using a geocoding program where mailing addresses are used to locate a facility. Field verification of potential contaminant sources is an important element of an enhanced inventory.

Where possible, a list of potential contaminant sites unable to be located with geocoding will be provided to water systems to determine if the potential contaminant sources are located within the source water assessment area.

References Cited

Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers, 1997. "Recommended Standards for Water Works."

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USGS - see United States Geological Survey

Attachment A

USBR Palisades Town Site Pump Susceptibility Analysis Worksheet

The final scores for the susceptibility analysis were determined using the following formulas:

- 1) VOC/SOC/IOC Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.2)
- 2) Microbial Final Score = Hydrologic Sensitivity + System Construction + (Potential Contaminant/Land Use x 0.375)

Final Susceptibility Scoring:

- 0 - 5 Low Susceptibility
- 6 - 12 Moderate Susceptibility
- ≥ 13 High Susceptibility

1. System Construction		SCORE			
	Drill Date	unknown			
	Driller Log Available	NO			
	Sanitary Survey (if yes, indicate date of last survey)	NO	0		
	Well meets IDWR construction standards	NO	1		
	Wellhead and surface seal maintained	NO	1		
	Casing and annular seal extend to low permeability unit	NO	2		
	Highest production 100 feet below static water level	NO	1		
	Well located outside the 100 year flood plain	YES	0		
Total System Construction Score			5		
2. Hydrologic Sensitivity					
	Soils are poorly to moderately drained	YES	0		
	Vadose zone composed of gravel, fractured rock or unknown	YES	1		
	Depth to first water > 300 feet	NO	1		
	Aquitard present with > 50 feet cumulative thickness	NO	2		
Total Hydrologic Score			4		
3. Potential Contaminant / Land Use - ZONE 1A			IOC Score	VOC Score	SOC Score
	Land Use Zone 1A	RANGELAND, WOODLAND, BASALT	0	0	0
	Farm chemical use high	YES	2	0	2
	IOC, VOC, SOC, or Microbial sources in Zone 1A	NO	NO	NO	NO
	Total Potential Contaminant Source/Land Use Score - Zone 1A		2	0	2
Potential Contaminant / Land Use - ZONE 1B					
	Contaminant sources present (Number of Sources)	YES	2	2	2
	(Score = # Sources X 2) 8 Points Maximum		4	4	4
	Sources of Class II or III leacheable contaminants or	YES	2	2	2
	4 Points Maximum		2	2	2
	Zone 1B contains or intercepts a Group 1 Area	NO	0	0	0
	Land use Zone 1B	Less Than 25% Agricultural Land	0	0	0
Total Potential Contaminant Source / Land Use Score - Zone 1B			6	6	6
Potential Contaminant / Land Use - ZONE II					
	Contaminant Sources Present	YES	2	2	2
	Sources of Class II or III leacheable contaminants or	YES	1	1	1
	Land Use Zone II	Less than 25% Agricultural Land	0	0	0
Potential Contaminant Source / Land Use Score - Zone II			3	3	3
Cumulative Potential Contaminant / Land Use Score			11	9	11
4. Final Susceptibility Source Score			11	11	11
5. Final Well Ranking					
			Moderate	Moderate	Moderate